International Activity Trip Report

Mountain Pine Beetle and other Forest Insects in the Southern Part of the Kamloops Region, British Columbia, Canada – August 20-22, 2007

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Pete Hall and Lorraine MacLauchlin, entomologists with B.C. Ministry of Forestry, invited a number of counterparts to visit the southern part of the Kamloops Region to view and discuss the current mountain pine beetle outbreak, as well as other forest insect problems in the Region. Fourteen people attended the trip including Iral and Lia from the USDA Forest Service R6, Mike Johnson from Washington Department of Natural Resources, and Tim McConnell, retired USDA FS – FHP. Other participants included representatives from B. C. Ministry of Forests, Canadian Forest Service, and private industry.

The extent of the mountain pine beetle outbreak in Canada is very impressive. Initially, the largest and more severe portion of the outbreak occurred in the northern Kamloops Region. In 2006, the temperatures and mountain pine beetle emergence coincided to result in a synchronized flight; this, plus the massive numbers of beetles to the north (it is speculated that many of the beetles were carried by a weather pattern to the south) exerted significant bark beetle pressure on lodgepole pine in the southern portion of the Region. Several years of near drought conditions and the extensive areas of dense lodgepole stands has resulted in a very impressive mountain pine beetle outbreak.

The mountain pine beetle outbreak in total is about 20 million acres, and the Kamloops area represents about 10% of the total outbreak. They are anticipating that by the end of the outbreak, 80% of the mature lodgepole pine will have been killed. In addition to the mortality in the mature LPP, mountain pine beetle is attacking and killing young lodgepole pine plantations (trees about 15 – 20 years old, and down to 5 inches dbh) and at the lower elevations, the ponderosa pines. The plantations, to some degree serve as a "sink" for mpb, however, they are also getting some development and emergence from these smaller trees as well. In stands, such as those on the Bonaparte Plateau, that have mixed lodgepole and spruce, mpb (in desperation) is also attacking (and completing development in) the spruce – insects that the Canadian folks referred to as "spine" beetles.

We were taken on a 2 ½ hour flight over the area to see some of the damage from the air. In addition to the extensive mpb mortality, there is also extensive western spruce budworm defoliation that extends into north central Washington State. There is also Douglas-fir beetle in the Douglas-fir, spruce beetle in the spruce, and western balsam bark beetle in the fir. Douglas-fir tussock moth populations are increasing as well.

Following the flight, we visited the Sun Peaks Ski Area and discussed some of the management options/issues with regard to bark beetles for that area. So far there does not

seem to be much concern over the mortality in the ski area, and in some cases it was welcome as the management allowed them to remove trees and open up an area for snowboarders. However, the higher elevation spruce stands between the runs are now dead and a decision on what to do has not been made.

Fig. 1: Aerial view of mpb mortality at Elbow Lake – photo by K. Buxton

Fig. 2: Aerial view of mpb in young pine (15 – 20 years old) plantations.

The next day we met with the Woodland Manager and foresters for Tokol Industries to discuss how they are managing the forests and contending with the results of the outbreak. Tokol is one of the largest forest industries in the Province, both owning thousands of hectares of forest land as well as holding several long-term leases of Crown

lands. Tokol owns a number of wood products facilities including saw mills, veneer plants, pulp mills, and bio-energy plants. In light of the extent of the outbreak and mortality, the only option is to try to utilize as much of the dead and dying material as possible. The material that was being removed while we were there, was for poles, which was a break-even activity. One of the questions facing forest managers, is what to do with the 15-20 year old plantations – many of these will experience 30% and more mortality. At some point the mortality will reach a point where it is no longer a viable plantation and will need to be cut and replanted. The question is, whether to cut and replant the plantation now, or wait (and lose several potential years growth) to see if the majority of the trees within the plantation will die.

We also visited some of the verbenone flake plots that were done in cooperation with Nancy Gillette at PSW Station. Timing of verbenone flake application was approximately one month before expected beetle flight. However, unlike 2006, the 2007 beetle flight has been very drawn out, and peak flight was just beginning to occur while we were there (August). Normally peak flight is in July. The lateness of the beetle flight in relation to the application, and the magnitude of the outbreak (sheer numbers of beetles present) itself may be factors in the results of the study. Beetles were attacking and killing trees around the pheromone-baited traps, which would be expected. It was interesting that none of the attacked trees had pitch tubes, only boring dust, an indication of the several winters of below normal moisture and stressed trees.

Fig 3: Mountain pine beetle attack on young pine with no pitch tubes, only boring dust.

The group also visited some of the Douglas-fir stands where Douglas-fir tussock moth populations are again increasing. The Douglas-fir outbreak that we visited was within a mile of a monitoring trap that has not detected a rising population. This outbreak was discovered by a chance drive-by.